claims 1-75

What is claimed is:

1. A method to increase transcription of lentiviral genes in lentivirus-infected cells comprising contacting said cells with at least one compound which increases the STAT5 action within said cell, wherein said increase in STAT5 action is sufficient to increase transcription of lentiviral genes in said cells.

2. The method of claim 1, wherein said lentivirus is selected from the group of human immunodeficiency virus (HIV), feline immunodeficiency virus (FIV), human T-lymphotropic virus type 1 (HTLV-1), and simian immunodeficiency virus (SIV).

3. The method of claim 2, wherein said lentivirus is HIV.

4. The method of claim 3, wherein said cell is a $CD4^+$ T lymphocyte.

5. The method of claim 4, wherein said contacting of said HIV-infected $CD4^+$ T lymphocytes occurs in a patient infected with HIV.

6. The method of claim 5, wherein said compound is administered in a pharmaceutically acceptable delivery vehicle.

7. The method of claim 6, wherein said pharmaceutically acceptable delivery vehicle is selected from the group consisting of water, phosphate buffered saline, Ringer's solution, dextrose solution, serum-containing solutions, Hank's solution, other aqueous physiologically balanced solutions, oils, esters, and glycols.

8. The method of claim 6, wherein said pharmaceutically acceptable delivery vehicle is selected from the group of lipid-containing delivery vehicles, retroviral vectors and recombinant viruses.

9. The method of claim 6, wherein said pharmaceutically acceptable delivery vehicle specifically targets HIV-infected $CD4^+$ T lymphocytes in said patient.

10. The method of claim 9, wherein said pharmaceutically acceptable delivery vehicle is selected from the group consisting of an antibody that selectively binds to gp120, an immunoliposome comprising an antibody that selectively binds to gp120, and a liposome expressing CD4 on its surface.

11. The method of claim 5, wherein said method reduces the amount of latently HIV infected $CD4^+$ T lymphocytes in said patient.

HOW DIFF.?

I. MRTH ↑ LV TSCR (1-18, 37-40, 50-67) 435/5

II. RRG SCRN MTHD (19-26, 68-75) 435/7.1

III. MRTH ↑ CD4 ∝ (27-36, 41-49) 435/7.2

12. The of method of claim 5, wherein said method prevents the production of latently HIV infected $CD4^+$ T lymphocytes in said patient.

13. The method of claim 11, wherein said compound blocks the synthesis of Nef protein.

14. The method of claim 13, wherein said compound is a Nef antisense nucleic acid.

15. The method of claim 13, wherein said compound is a Nef siRNA.

16. The method of claim 12, wherein said compound blocks the synthesis of Nef protein.

17. The method of claim 16, wherein said compound is a Nef antisense nucleic acid.

18. The method of claim 16, wherein said compound is a Nef siRNA.

19. A method to identify a regulatory compound that reduces the number of latently lentivirus infected cells in a population by increasing STAT5 action, comprising:

a) obtaining a population of cells infected with said lentivirus;

b) measuring the amount of latently infected cells in the population;

c) contacting said cells with a composition comprising one or more compounds that increase said STAT5 action in said cells; and

d) measuring the amount of latently infected cells in the population,

wherein a decrease in the amount of latently infected cells in the sample after contact with the modulating compound as compared to the amount of latently infected cells in the sample prior to contact with the modulating compound indicates that the composition is effective to reduce the amount of latently lentivirus infected cells in a population.

20. The method of claim 19, wherein said lentivirus is selected from the group of human immunodeficiency virus (HIV), feline immunodeficiency virus (FIV), human T-lymphotropic virus type 1 (HTLV-1), and simian immunodeficiency virus (SIV).

21. The method of claim 20, wherein said lentivirus is HIV.

22. The method of claim 21, wherein said cell is a $CD4^+$ T lymphocyte.

23. A method to identify a regulatory compound that prevents the production of latently lentivirus infected cells in a population by increasing STAT5 action, comprising:

a) obtaining a population of cells infected with said lentivrus;

b) measuring the amount of latently infected cells in the population;

c) contacting said cells with a composition comprising one or more compounds that increase said STAT5 action in said cells; and

d) measuring the amount of latently infected cells in the population,

wherein a decrease in the amount of latently infected cells in the sample after contact with the modulating compound as compared to the amount of latently infected cells in the sample prior to contact with the modulating compound indicates that the composition is effective to prevent the production of latently lentivirus infected cells in a population.

24. The method of claim 23, wherein said lentivirus is selected from the group of human immunodeficiency virus (HIV), feline immunodeficiency virus (FIV), human T-lymphotropic virus type 1 (HTLV-1), and simian immunodeficiency virus (SIV).

25. The method of claim 24, wherein said lentivirus is HIV.

26. The method of claim 25, wherein said cell is a $CD4^+$ T lymphocyte.

27. A method to increase $CD4^+$ T lymphocyte immune responsiveness in a patient infected with human immunodeficiency virus (HIV), comprising increasing STAT5 action in $CD4^+$ T lymphocytes of said patient, wherein said increase in STAT5 action is sufficient to increase immune responsiveness in said $CD4^+$ T lymphocytes.

28. The method of claim 27, wherein said $CD4^+$ T lymphocytes express CD4 that has been ligated by gp120 on said HIV.

29. The method of claim 28, wherein said $CD4^+$ T lymphocytes are not infected by said HIV.

30. The method of claim 28, wherein said $CD4^+$ T lymphocytes are latently infected by said HIV.

31. The method of claim 28, wherein said $CD4^+$ T lymphocytes are productively infected by said HIV.

32. The method of claim 27, wherein said patient has early onset HIV-infection.

33. The method of claim 32, wherein said patient has a $CD4^+$ T lymphocyte count of at least about 100 cells/mm^3 when said method is employed.

34. The method of claim 32, wherein said patient has an HIV viral load of less than about 400 copies/ml when said method is employed.

35. The method of claim 27, wherein said method is employed in conjunction with administration to said patient of one or more antiretroviral therapeutic compounds.

36. The method of claim 35, wherein said anti-retroviral therapeutic compounds are selected from the group consisting of AZT, ddI, ddC, d4T, 3TC and protease inhibitors.

37. The method of claim 11, wherein said method is employed in conjunction with administration to said patient of one or more antiretroviral therapeutic compounds.

38. The method of claim 37, wherein said anti-retroviral therapeutic compounds are selected from the group consisting of AZT, ddI, ddC, d4T, 3TC and protease inhibitors.

39. The method of claim 12, wherein said method is employed in conjunction with administration to said patient of one or more antiretroviral therapeutic compounds.

40. The method of claim 37, wherein said anti-retroviral therapeutic compounds are selected from the group consisting of AZT, ddI, ddC, d4T, 3TC and protease inhibitors.

41. The method of claim 27, wherein said method comprises the step of administering to said $CD4^+$ T lymphocytes a composition comprising one or more compounds that increase the action of STAT5 in said $CD4^+$ T lymphocytes.

42. The method of claim 41, wherein said composition comprises one or more compounds that selectively bind to and stimulate a receptor comprising a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

43. The method of claim 41, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

44. The method of claim 41, wherein said composition comprises a cytokine selected from the group consisting of IL-7, IL-9, IL-13, and IL-15.

45. The method of claim 41, wherein said composition comprises an antibody that selectively binds to and stimulates a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

46. The method of claim 41, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

47. The method of claim 41, wherein said composition comprises a recombinant nucleic acid molecule comprising an isolated nucleic acid sequence encoding a biologically active STAT5 protein operably linked to a transcription control sequence, whereby said $CD4^+$ T lymphocyte expresses said biologically active STAT5 protein.

48. The method of claim 41, wherein said composition comprises a biologically active STAT5 protein operatively linked to an N-terminal protein transduction domain from HIV TAT.

49. The method of claim 41, wherein said composition comprises a product of rational drug design.

50. The method of claim 11, wherein said method comprises the step of administering to said $CD4^+$ T lymphocytes a composition comprising one or more compounds that increase the action of STAT5 in said $CD4^+$ T lymphocytes.

51. The method of claim 50, wherein said composition comprises one or more compounds that selectively bind to and stimulate a receptor comprising a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

52. The method of claim 50, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

53. The method of claim 50, wherein said composition comprises a cytokine selected from the group consisting of IL-7, IL-9, IL-13, and IL-15.

54. The method of claim 50, wherein said composition comprises an antibody that selectively binds to and stimulates a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

55. The method of claim 50, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

56. The method of claim 50, wherein said composition comprises a recombinant nucleic acid molecule comprising an isolated nucleic acid sequence encoding a biologically active STAT5 protein operably linked to a transcription control sequence, whereby said $CD4^+$ T lymphocyte expresses said biologically active STAT5 protein.

57. The method of claim 50, wherein said composition comprises a biologically active STAT5 protein operatively linked to an N-terminal protein transduction domain from HIV TAT.

58. The method of claim 50, wherein said composition comprises a product of rational drug design.

59. The method of claim 12, wherein said method comprises the step of administering to said $CD4^+$ T lymphocytes a composition comprising one or more compounds that increase the action of STAT5 in said $CD4^+$ T lymphocytes.

60. The method of claim 59, wherein said composition comprises one or more compounds that selectively bind to and stimulate a receptor comprising a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

61. The method of claim 59, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

62. The method of claim 59, wherein said composition comprises a cytokine selected from the group consisting of IL-7, IL-9, IL-13, and IL-15.

63. The method of claim 59, wherein said composition comprises an antibody that selectively binds to and stimulates a γ_c chain on the surface of said $CD4^+$ T lymphocyte.

64. The method of claim 59, wherein said composition comprises a cytokine selected from the group consisting of interleukin-2 (IL-2), IL-4, IL-7, IL-9, IL-13, and IL-15.

65. The method of claim 59, wherein said composition comprises a recombinant nucleic acid molecule comprising an isolated nucleic acid sequence encoding a biologically active STAT5 protein operably linked to a transcription control sequence, whereby said $CD4^+$ T lymphocyte expresses said biologically active STAT5 protein.

66. The method of claim 59, wherein said composition comprises a biologically active STAT5 protein operatively linked to an N-terminal protein transduction domain from HIV TAT.

67. The method of claim 59, wherein said composition comprises a product of rational drug design.

68. The method of claim 22, wherein said population of $CD4^+$ T lymphocytes are obtained by infecting $CD4^+$ T lymphocytes with HIV.

69. The method of claim 22, wherein said population of $CD4^+$ T lymphocytes are obtained by isolating latently HIV-infected T lymphocytes from an HIV-infected patient.

70. The method of claim 22, wherein said contacting of said $CD4^+$ T lymphocytes is performed by a technique selected from the group of transfection, electroporation, microinjection, cellular expression, lipofection, adsorption, protoplast fusion, use of ion carrying agents, use of protein carrying agents, and use of detergents for cell permeabilization.

71. The method of claim 70, wherein said cellular expression is accomplished using an expression system selected from the group consisting of

naked nucleic acid molecules, recombinant virus, retrovirus expression vectors, and adenovirus expression vectors.

72. The method of claim 26, wherein said population of $CD4^+$ T lymphocytes are obtained by infecting $CD4^+$ T lymphocytes with HIV.

73. The method of claim 26, wherein said population of $CD4^+$ T lymphocytes are obtained by isolating latently HIV-infected T lymphocytes from an HIV-infected patient.

74. The method of claim 26, wherein said contacting of said $CD4^+$ T lymphocytes is performed by a technique selected from the group of transfection, electroporation, microinjection, cellular expression, lipofection, adsorption, protoplast fusion, use of ion carrying agents, use of protein carrying agents, and use of detergents for cell permeabilization.

75. The method of claim 74, wherein said cellular expression is accomplished using an expression system selected from the group consisting of naked nucleic acid molecules, recombinant virus, retrovirus expression vectors, and adenovirus expression vectors.